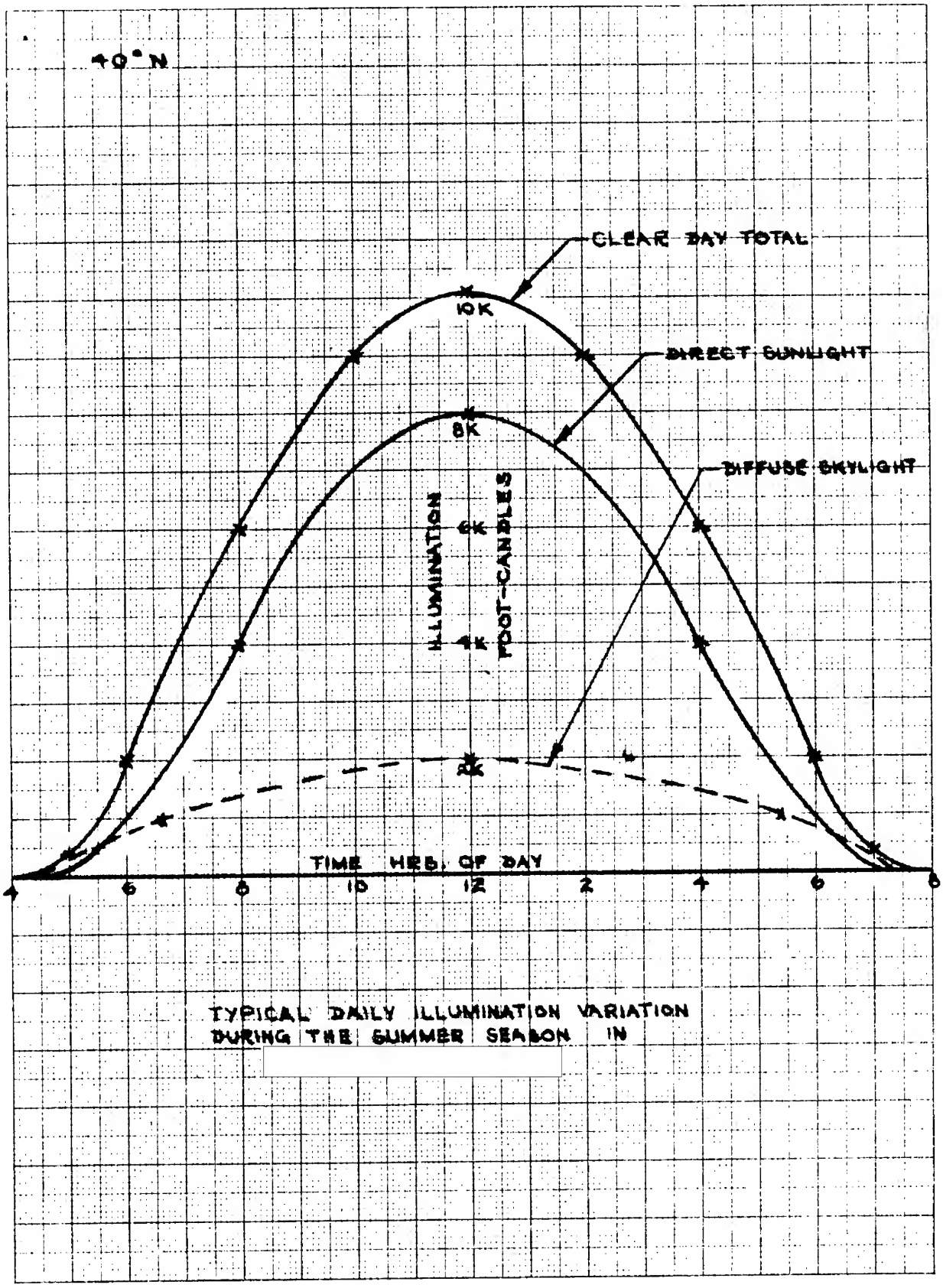
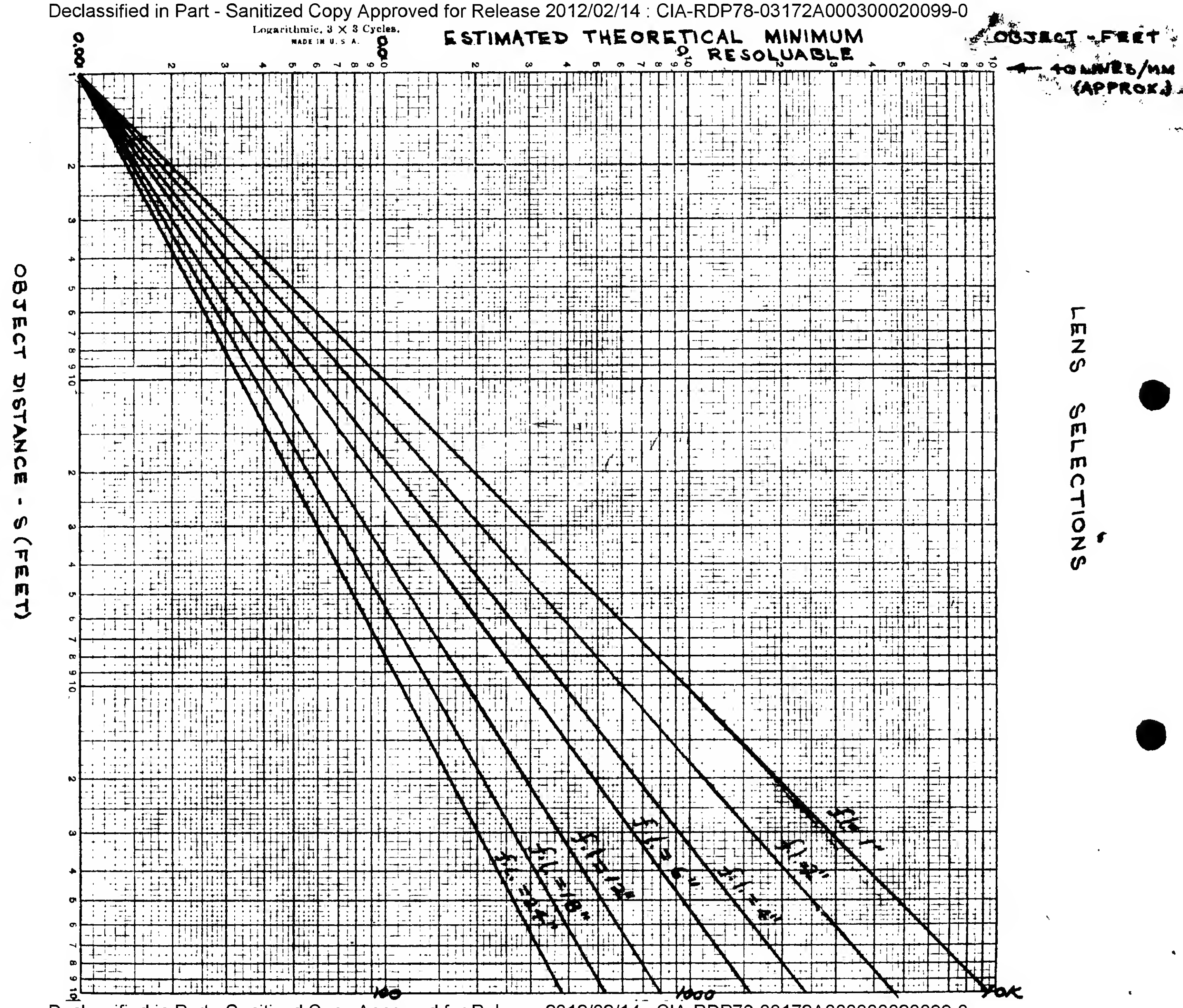
GENERAL EVALUATION OF EXPOSURE CONTROL SYSTEMS

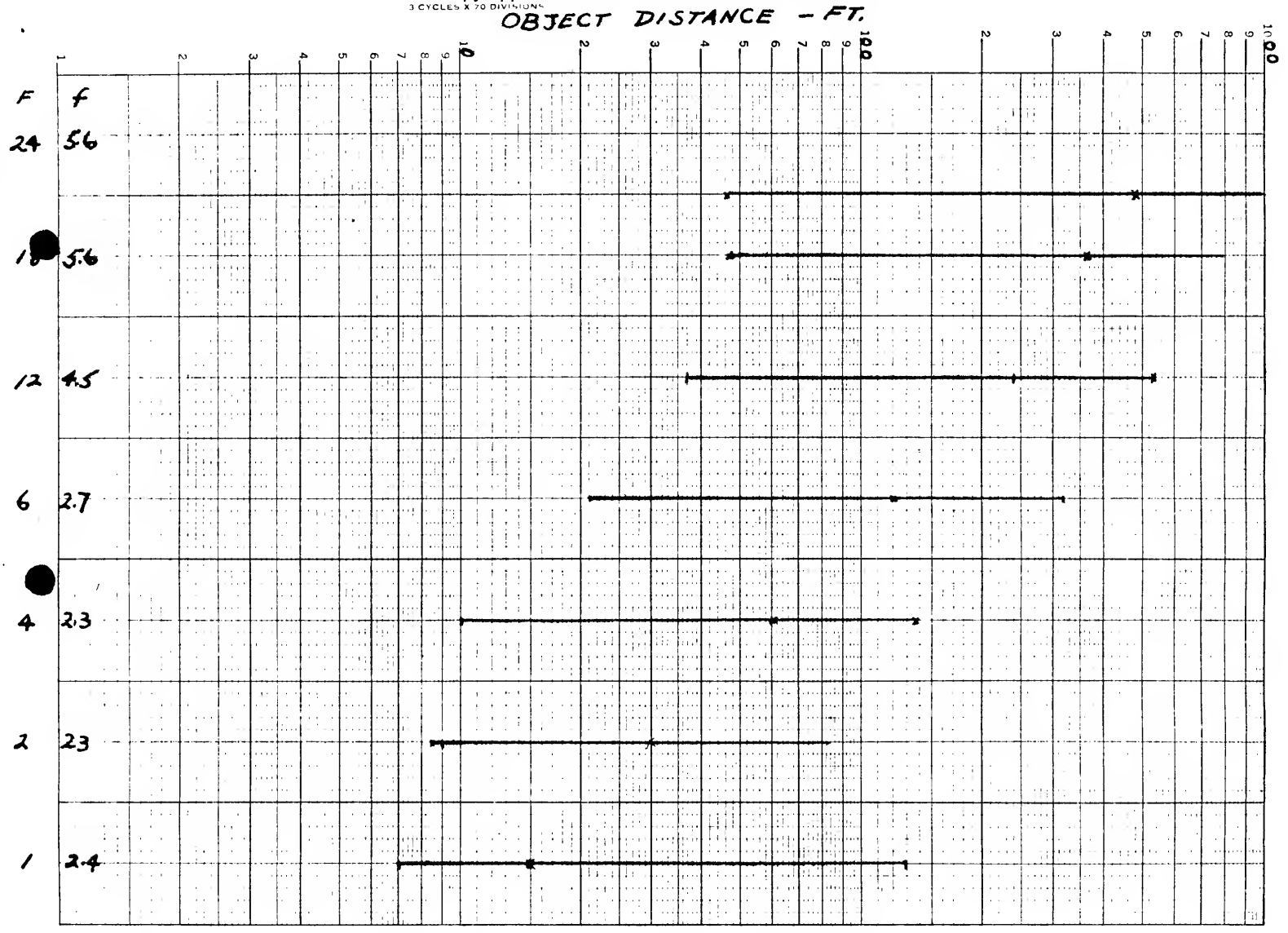
	IRIS CONTROL		TIME CONTROL		COMBINED CONTROL	
	PRO	CON	PRO	CON	PRO	CON
	HIGH STATIC RESOLUTION	GREATER POWER CONSUMPTION	HIGH SYSTEM RELIABILITY	LESS DEPTH OF FIELD	MAX. DYNAMIC RANGE CAPABILITY	HIGH COMPLEXITY
	GREATER DEPTH OF FIELD	LOW SYSTEM RELIABILITY	HIGH SYSTEM RESOLUTION	LESS STATIC RESOLUTION	MAX. OPERATING TIME	LESS EQUIPMENT RELIABILITY
		HIGH MECHANICAL COMPLEXITY	HIGH DYNAMIC RANGE		MAX. CONTRAST	HIGHER COST
		LESS DYNAMIC RANGE	QUICK DELIVERY		MAX. RESOLUTION	LONGER DESIGN & PRODUCTION TIME
		LOW DYNAMIC RESOLUTION				
CONTINUOUS	MAX. CONTRAST	MORE POWER REQUIREMENT	SAME AS IRIS CONTROL		SAME AS IRIS CONTROL	
	MAX. RESOLUTION	MORE COMPLEXITY				
STEP	SIMPLICITY	LESS INFORMATION CONTEND				
	RELIABILITY					
OPEN LOOP	SIMPLICITY	INACURACY	SAME AS IRIS CONTROL		SAME AS IRIS CONTROL	
		LESS RELIABLE				
CLOSE LOOP	MORE RELIABILITY	MORE COMPLEXITY				
SINGLE LENS	SIMPLICITY	WORK WITH SMALL SPACE	SAME AS IRIS CONTROL		SAME AS IRIS CONTROL	
	RELIABILITY					
	LOW COST					
	MORE COMPACT					
DUAL LENS	MORE WORKING SPACE	LESS RELIABLE				
	BETTER APPROXIMATION	MORE MECHANICAL COMPLEXITY				



TYPICAL DAILY ILLUMINATION VARIATION
DURING THE SUMMER SEASON IN

STAT





SUBJECT ..... SHEET NO. ..... OF .....

BY ..... DATE .....

CHKD. BY ..... DATE .....

F.L.

1"

2"

4"

6"

12"

18"

24"

0 10 20 30 40 50 60 70 80

DIAPHRAGM ANGLE OF ROTATION

CHKD. BY ..... DATE ..... [redacted] JOB NO. .....

Depth of Field Calculation for CD-182 Lens

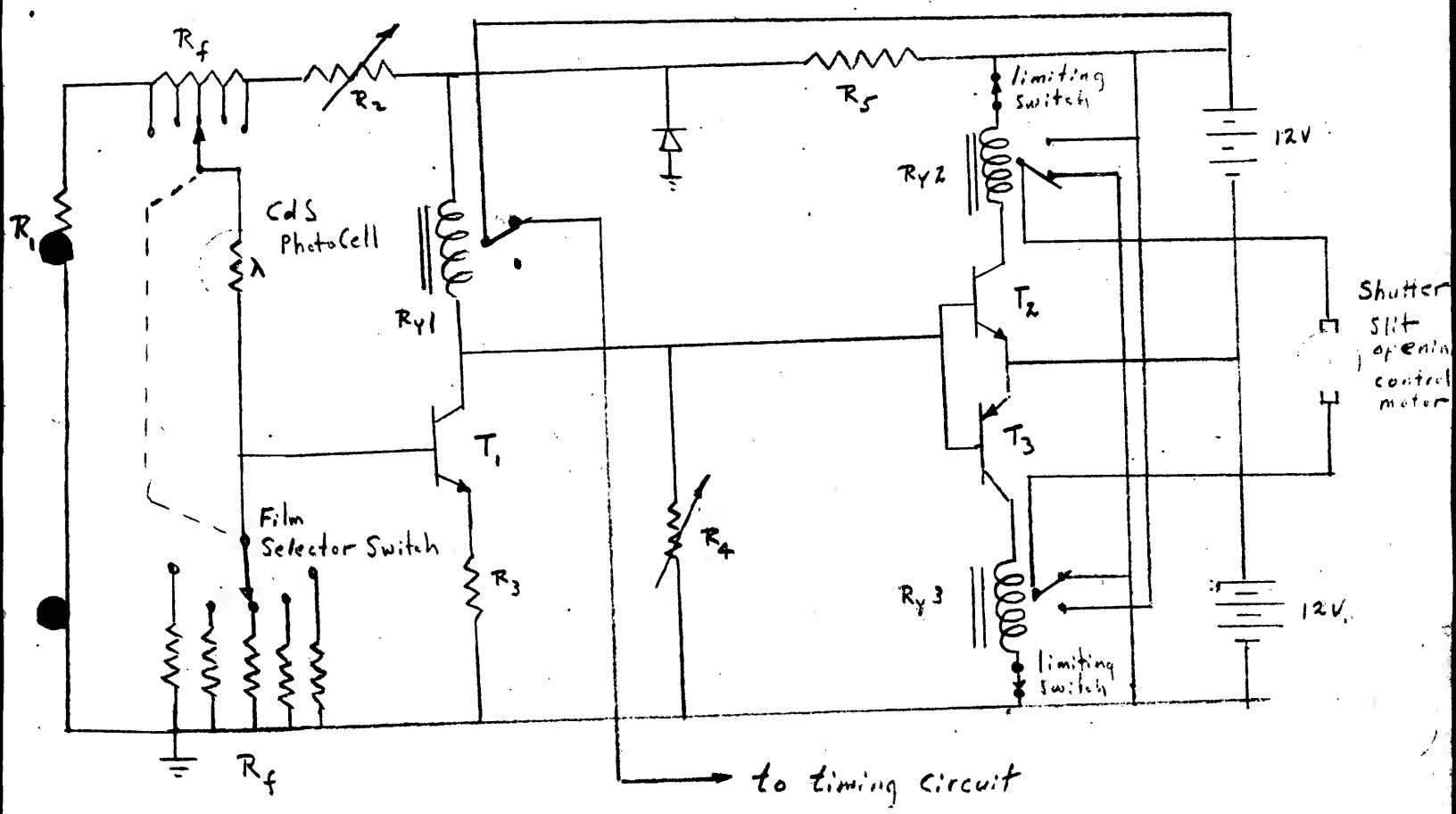
D = Depth of field $= D_N + D_F$

$D_N \doteq \frac{HS}{H+S}$ $\quad D_F \doteq \frac{HS}{H-S}$

H = hyperfocal distance $= \frac{F^2}{f C_c} \times .083$

for $C_c = 0.002$ $\quad = 41.5\, F^2/f$

F	f	S	H	HS	H-S	S+H	D_F	D_N	D
1"	2.4	15	17.3	260	2.3	32.3	113	8	121
2"	2.3	30	72	2160	42	102	51.5	21.6	73
4"	2.3	60	289	17340	229	349	>6	50	126
6"	2.7	100	554	55400	454	654	199	99	298
12"	4.5	240	1330	319200	1090	1570	293	203	496
18"	5.6	360	2400	8.65×10^5	2040	2760	424	313	737
24"	5.6	480	4270	2.05×10^6	3790	4750	543	434	977



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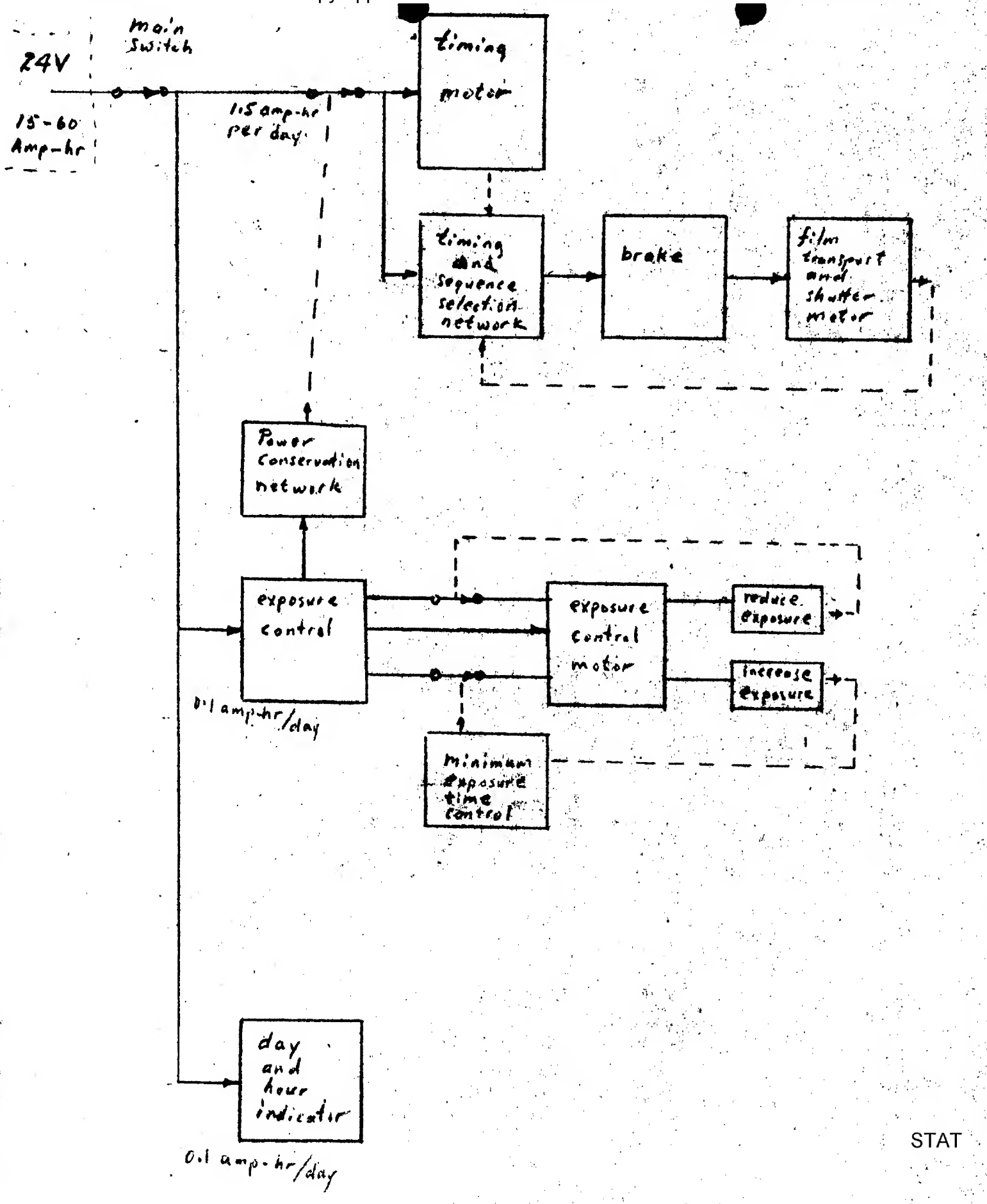
Automatic Exposure Control Circuit Diagram

10-23-57



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CD-182 System Block Diagram

10-23-57

STAT

No 7838

TO: [redacted] STAT DATE: 10-17-57

CD-182 Battery Recommendation

A. Requirements

1. 100 ma. continuous operation 15 hr./day
2. 900 ma 1-sec duration 800 time per day
3. 24 V. with center tap
4. continuous operation unmanned for 15 days

B. Type of cell that may satisfy the needed.

	HR-15	LR-20	LR-40
Days of operation	9.4	12.5	25
cost (15 cells)	$480	$980	$640
volume, in³/cell	9.25	15.18	32.52
wt., oz/cell	9.7	13.2	22.6

C. Recommendation

For stationary operations capacity is more important than volume and weight. LR-20 is recommended over HR-15 since for the same cost LR-20 provides 30% more capacity. If the capacity of LR-20 is not sufficient to meet the mission requirements LR-40 may be satisfactory.